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THE
NATURAL HISTORY
OF
BRITISH INSECTS;

EXPLAINING THEM
IN THEIR SEVERAL STATES,
WITH THE PERIODS OF THEIR TRANSFORMATIONS,
THEIR FOOD, ŒCONOMY, &c.

TOGETHER WITH THE
HISTORY OF SUCH MINUTE INSECTS
AS REQUIRE INVESTIGATION BY THE MICROSCOPE.

THE WHOLE ILLUSTRATED BY
COLOURED FIGURES,
DESIGNED AND EXECUTED FROM LIVING SPECIMENS.

BY E. DONOVAN.

VOL. VI.

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P L A T E CCLXIX.

SPHINX OCELLATA.

EYED HAWK MOTH.

GENERIC CHARACTER.

Antennæ thickest in the middle : wings deflected when at rest.
Fly by night.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings angulated : posterior pair red, with a large blue eye in the middle of each.

SPHINX OCELLATA : alis angulatis, posticis rufis ocello cœruleo.
Fab. Syst. Ent. 536. 1.

SPHINX OCELLATA, alis repandis, posticis ocellatis. *Linn. Syst. Nat.* 2. 796. 1.—*Fr. Sv.* 1083.

Phalæna alis inferioribus macula opthalmoide insignibus. *Alb. Inf.* tab. 8. fig. 2.

Drury Inf. 2. tab. 25. fig. 2. 3.

Roef. Inf. phal. 1. tab. 1.

Schæff. Icon. tab. 99. fig. 5. 6.

Merian Europ. 2. tab. 87.

The Sphinges are only, in a few instances, remarkable for that gaiety and splendour of colours, which render the Butterfly tribe so

pleasing and interesting to general observers. There is, however, a peculiar grace and elegance of form throughout the Sphinges, which immediately distinguish them from the Phalænæ, or third tribe of Lepidopterous Insects; and their colours, though chaste or obscure, are, for the most part, very prettily diversified. The Sphinges of Great Britain are not numerous; and, in general, the more beautiful kinds are rare. The Sphinx Ocellata is certainly an exception to this for we have not a more gay or abundant species of the tribe in this country. It is also common in other countries of Europe: and few authors, who have treated on the Entomology of any part of the continent have neglected to give it a place in their works.

The larva of the Sphinx Ocellata is found on the willow, in May, June, and July, about which latter time it becomes a pupa, and remains in the earth till June following when it quits its subterranean retreat and comes forth in the perfect state.



THE
NATURAL HISTORY
OF
BRITISH INSECTS.

PLATE CCCXXV.

SPHINX TILIÆ.

LIME HAWK MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle: wings deflected when at rest.
Fly from morning and evening.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings angulated, greenish clouded with brown, two triangular olive bands across the anterior wing, tips white: posterior wings yellow brown with a transverse dark band.

SPHINX TILIÆ: alis angulatis virecenti nebulosis saturatius fasciatis,
posticis supra luteo testaceis. *Linn. Syst. Nat.* 2.

797. 3.—*Fn. Sv.* 1085.—*Fab. Ent. Syst. T.* 3.

p. 1. *p.* 358. *Sp.* 10.

Albin. Inf. tab. 10.

Roef. Inf. 1. *phal.* 1. *tab.* 2.

Schæff. Elem. tab. 116. *fig.* 1.

Schæff. Icon. tab. 100. *fig.* 1. 2.

Merian. Europ. 2. *tab.* 24.

Esp. Inf. 2. *tab.* 3.

Geoffr. Inf. 2. 80. 2.

The larva of this elegant Insect feeds on the Lime tree. In September it changes to the pupa, and the Sphinx is produced in May.—It is very common in most parts of the country.



P L A T E C C X L I.

S P H I N X P O P U L I.

POPLAR HAWK MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ prism-form and thickest in the middle: tongue exerted: wings when at rest deflected.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings reversed, dentated, grey: a white central spot on the anterior pair: posterior red at the base.

S P H I N X P O P U L I: Alis dentatis reversis griseis: anticis puncto albo, posticis basi ferrugineis. *Linn. Syst. Nat.* 2. 797. 2.—*Fn. Sv.* 1084.

Roes. Inf. 3. tab. 30.

Schæff. Icon. tab. 100.

Degeer. Inf. 1. tab. 8. fig. 5.

Sepp. Inf. 3. 3. tab. 1.

Albin. Inf. tab. 38. fig. C.

Wilks pap. 11. tab. B. C.

This beautiful Insect is very common in this country, and not less so in every other part of Europe: it feeds on the poplar and willow

willow in the larva state, and frequents those trees in the winged state also. About the month of September, the Larva or Caterpillars are full grown, and change to the Pupa: the Sphinx appears in May.



THE
NATURAL HISTORY
OF
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PLATE CCLXXXIX.

SPHINX ATROPOS.

DEATH'S HEAD, or BEE TIGER HAWK MOTH.

GENERIC CHARACTER.

Antennæ somewhat prismform and thickest in the middle: tongue exerted: feelers two, reflected: wings deflected.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings entire; posterior pair pale yellow, with fuscous bands: abdomen yellow, with black rings.

SPHINX ATROPOS: alis integris: posticis luteis; fasciis fuscis, abdomine luteo: cingulis nigris. *Lin. Syst. Nat.* 2. 799. 9.—*Muf. Lud. Ulr.* 348.

Reaum. Inf. 1. tab. 14.

Rœf. Inf. 2. tab. 1. 1.

Hæffelquist. Itin. 407. 104. 105.

Schæf. Icon. tab. 99. fig. 1. 2.

Esp. Inf. 2. tab. 7.

Sulz. Inf. tab. 15. fig. 88.

Albin. Inf. tab. 6.

Wilks. pap. 9. tab. 1. B. 1.

The Sphinx Atropos is a magnificent species, and is the largest of the European insects of its tribe. The characteristic marks of this creature are singular, and that on the thorax more especially, as it bears a very strong resemblance to the figure of a human skull. The latter indeed is so forcibly depicted, that the occasional appearance of a brood of these insects, in some parts of the country, has not unfrequently been deemed by the uninformed a presage of approaching calamity. Linnæus adverts to this ominous character in naming it Atropos, after one of the three fates of the heathen mythology.

This species was formerly esteemed very scarce in Britain, and a specimen in our possession, bred from a larva found in England, was once esteemed a considerable rarity. It has, however, during the years 1808 and 1809, occurred in plenty in the larvæ state, though, from the extreme care required to rear them, few of the perfect insects have been produced. The greater number of the larvæ above-mentioned were dug up in the gardeners' grounds in the vicinity of London.



P L A T E CCXC.

THE

L A R V A

OF

S P H I N X A T R O P O S.

DEATH'S HEAD, or BEE TIGER HAWK MOTH.

This Specimen was found on the Jasmine, the latter end of August. It is said to feed also on Potatoes and Green Elder. The fly is produced in July after remaining in the pupa state throughout the preceding winter and spring.





P L A T E CCXCVI.

SPHINX PINASTRI.

PINE HAWK MOTH.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings deflexed when at rest.
Fly slow, morning and evening.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings entire. Greyish white: three contiguous black lines in the middle of the anterior pair. Abdomen brownish, with bands of white.

SPHINX PINASTRI: alis integris canis: anticis lineolis tribus confertis nigris, abdomine fusco: cingulis albis. *Linn.*
Syst. Nat. 2. 802. 22.—*Fn. Sv.* 1088.
Fab. Ent. Syst. T. 3. p. 1. p. 367. 35.
Esp. Inf. 2. tab. 12.
Roef. Inf. 1. phal. 1. tab. 6.
Reaum. Inf. 1. tab. 13. fig. 8.

We have only a traditionary report that *Sphinx Pinastri* has been sometimes found in Scotland; but as it is generally admitted, on that authority, to a place in the cabinets of English Insects, we cannot refrain inserting it in the present work.

It is an European Insect, and in particular is found in the Pine forests of Germany. Roefel has figured it with the larva and pupa,
in

in the plate above quoted ; and as we may, perhaps, never meet with it in that state, we conceived the copies of them in the annexed plate, would at least be satisfactory to such subscribers as have not the works of that German author.



P L A T E CCXXVIII.

SPHINX CONVULVULI.

BIND-WEED HAWK MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ somewhat prism-form, and thickest in the middle: tongue exerted: wings, when at rest, deflected. Fly slow, morning and evening only.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings entire, clouded: posterior pair with transverse bands: abdomen belted with alternate marks of red, black, and white.

SPHINX CONVULVULI: alis integris nebulosis: posticis subfasciatis, abdomine cingulis rubris atris albisque. *Linn. Syst. Nat.* 2. 798. 6.—*Fab. Ent. Syst.* I. 2. p. 1. 374. 54.

Geoff. In. 286. 9.

Roef. Phal. 1. tab. 7.

Sepp. Inf. 3. 19. tab. 4.

Merian. Europ. 39. tab. 75. fig. 2.

Cramer Inf. 19. tab. 225. fig. D.

Wells pap. 10. tab. 1. 6. 2.

Esp. Inf. 2. tab. 5.

Dury Inf. 1. tab. 25. fig. 4

This is the largest of the Hawk Moths that inhabits Great Britain, except *Sphinx ligustri* and *Sphinx Atropos*. It is rarely taken in this country; the curious in English Insects have them from Germany, where the species is more common than with us.

A beautiful variety (as it is supposed) of this Insect is found in North America: the wings are more richly varied with different shades of brown than the former; the posterior wings are of a fine rose-colour. It has all the characteristic marks of *Sphinx Convolvuli*, or we should hesitate to admit it as the same species. We received it from Mr. Abbot, in whose folio work it is also figured; he found it on the Wild Vine. Mr. Drury had the same variety sent to him from St. Christopher's.



P L A T E CCXXIX.

THE
 LARVA AND PUPA
 OF
 SPHINX CONVOLVULI,
 BIND WEED HAWK MOTH.

We have not been so fortunate as to meet with the larva of this rare Insect ; nor can we learn that it has been taken by any Collector of English Insects for many years. One specimen was said to be taken, in the winged state, in the fields near Hoxton about two years ago.

To perfect the History of this species, we have copied the Figures of the Caterpillar and Pupa, from N° 7, *Der Nacht-Voegel*, &c. &c. of Roefel's *Insecten Bellustigung*, Vol. I.

Our readers will observe that the Fly produced from the Caterpillars represented by Roefel is nearly one-third larger than the specimens supposed to be bred in England ; the Caterpillars must therefore be larger in the same proportion in the specimens found in Germany.—The Caterpillars are of two colours, one green with stripes of yellow and spots of black ; the other dull brown with ochre coloured stripes, and sides of the same. The Caterpillar figured by Abbot has a rose-coloured band on the side.





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PLATE CCCLXI.

SPHINX CAROLINA.

YELLOW SPOTTED UNICORN HAWK-MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ somewhat pristin-formed, and thickest in the middle: tongue most commonly exerted: feelers two: wings deflected.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings clouded, entire, posterior margin dotted with white: abdomen with five (or six) pair of fulvous spots.

SPHINX CAROLINA: alis integris omnibus margine postico albo punctato, abdominis ocellis sex parium fulvis. *Lin. Syst. Nat.* 2. 798. 7.—*Muf. Lud. Ulr.* 346.—*Gmel. Linn. Syst. Nat.* 2377. 7.

SPHINX CAROLINA. *Fabr. Ent. Syst. T. 3. p. 1 p. 363. n. 25.*

SPHINX 5-MACULATUS, the yellow spotted UNICORN. *Haw. Lep. Brit. 59. Sp. 3.*



We are happy to embrace the present opportunity of presenting our readers with a figure of this magnificent species of Hawk-Moth, as a new British Insect, upon the best and most unquestionable authority. We have a specimen of it among the British Sphinges, in the cabinet of the late Mr. Drury, now in our possession, with a manuscript note affixed, informing us that this identical insect was taken in the neighbourhood of London, and brought to him alive some few years ago*. The figure accompanying this description will afford a better idea of the beauty of this valuable acquisition, than any words we can employ; it is represented precisely in its natural size, and as nearly resembling it in markings, and colours, as the fidelity of the pencil will admit.

When we say the figure of this insect is submitted for the first time as a British species, we wish to be understood as speaking of the figure only, for the very specimen under consideration at this time has been already described as a British insect, and the species itself is perfectly well known as an exotic, or extra-european kind, to most entomologists. It is this specimen that Mr. Haworth mentions in his recent essay on the Lepidoptera of Great Britain, and upon the sole authority of which he inserted it in that work as a new British

* The label alluded to, refers to two specimens, namely, our present insect, and one of *Sphinx Convolvuli*, both which are mentioned in the following words, inscribed in the hand-writing of Mr. Drury. "One of the above species is certainly different from the *Sph. Convolvulus*. The difference is manifestly discernable. They were alive when first brought to me, one about the year 1776, the other 1788."—It is obviously impossible to collect from the tenor of this memorandum, which of the two insects he received first, but this we may rest persuaded of, that he obtained the living specimen of our new British species either in the year 1776, or 1788.

Insect. We have, however, still further to observe, that although it was unique as *British* at the time Mr. Haworth described it from Mr. Drury's cabinet, it is not so at present, another collector, as Mr. Haworth informs us, having captured a specimen of it very lately in the vicinity of Little Chelsea, near which place it proves, upon pretty accurate information that Mr. Drury's specimen was also taken.

These are our authorities for considering the species as British, and of course as claiming a very distinguished place in the present work, not less on account of its magnitude, than its beauty and rarity. That it is occasionally found in Britain is sufficiently obvious, but there are circumstances attending its history that leave some doubts upon our mind, whether we ought not rather to consider it as a naturalized species, than as an *aborigine*, at the same time that the absolute impossibility of deciding this doubtful particular must be acknowledged.—In America, we well know, it is far from uncommon, and being naturally a hardy species, there is at least a possibility of the parent stock of the English brood having been originally introduced into this country with the cargoes of some American vessels.

This being the true *Sphinx Carolina* of Linnaeus, an insect so very clearly ascertained both from the Linnean description of it, and from the figure quoted in the works of Merian, we cannot avoid expressing some surprise, that Mr. Haworth, in his recent publication above-mentioned, should have deemed it altogether a new species. The circumstance of Mr. Drury's specimen having only five pair of lateral spots on the abdomen, instead of six as Linnaeus remarks in speaking of his *Sphinx Carolina*, may perhaps have led to this error; for in every other, particular Linnaeus is surely too expressive to be easily mistaken. So far as relates to the number of those yellow lateral spots, the Linnean definition must be understood with some latitude, for Linnaeus would certainly have been more correct in stating five spots on each side to be the usual number, instead of six. All the specimens of *Sphinx Carolina* that have occurred to our own observation, have been uniformly marked with five pair of la-

teral spots only, with the exception of one or two large females, in which there was a slight appearance of a sixth pair; a few fulvous hairs appearing below the black band on each side the sixth annulation of the abdomen.

The larva of this insect is green, with lateral spiracles on every segment, surrounded by a purple ring, and the caudal spine is of the same colour. According to Fabricius the larva feeds on the Tobacco plant: Mr. Abbot also confirms this fact in his history of the Insects of New Georgia, so that whatever it may subsist upon in this country, we must conclude the Tobacco plant to be its natural food. In America we are informed, that it is really distinguished by the name of *Tobacco Moth*.





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PLATE CCCCLXIX.

SPHINX DRURÆI.

DRURY'S HAWK MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ somewhat prism-form, and tapering at each end: tongue generally exerted: feelers two, reflected; wings deflected.

SPECIFIC CHARACTER.

SPHINX DRURÆI. Wings entire: anterior pair grey and testaceous clouded, with distinct fuscous blotch in the middle: anterior wings red, with three denticulate black bands: abdomen red, with black belts.

SPHINX CONVULVULI, *var.* POTATOE HAWK MOTH. *Smith's Inf. Georg. V. 1. p. 32.*

SPHINX CONVULVULI, *varietas.* *Drury, V. 1. pl. 25. fig. 4?*

A more beautiful insect than that before us has never been introduced to the attention of our readers, either as an exotic species, or a native of this country; but, with what propriety we have ventured to consider it specifically distinct from the *Sphinx Convolvuli*, to which it is so closely allied, or how far we may be authorized, from the occurrence of a single example in a living state in Britain, to admit it as an inhabitant, we are disposed to submit to the decision of others, after relating the circumstances which induce us to include it in the present work.

In a former volume our subscribers possess a figure and description of another very interesting species of the same tribe, the *Sphinx Carolina*; an insect sufficiently known as a Linnæan species, and as a native of North America, but which was inserted as a British insect on the authority of the late Mr. Drury, who received the individual specimen described in a living state. It will be found, on reference to the memorandum in the hand-writing of Mr. Drury annexed thereto, that the information it conveys relates to two species of the *Sphinx* tribe, the one we then described, and another, which latter is the insect now under consideration. The memorandum states, that these two insects were brought to Mr. Drury alive, one about the year 1776, the other in 1788. Whether the species *Carolina*, or the present, was discovered first, cannot be at this time ascertained: it is only evident that both were taken within the interval of the above-mentioned periods.

The discovery of a solitary specimen of any insect in this country, which is clearly authenticated to be indigenous to extra European climates, is not altogether sufficient in our mind to countenance its introduction into the British Fauna; yet there are circumstances, under which it would be improper to omit the mention of such extraordinary acquisitions; and this idea applies, in an immediate degree, to the discovery of the present very elegant species in a state of nature in Britain. We are nevertheless inclined to regard it as an accidental occurrence only, and conceive it incumbent to observe, as in the instance of *Sphinx Carolina*, that there appears to us every reason
for

for believing it must have been originally imported in the egg, or larva state, among some articles of American produce, though from this introduction it is not to be denied that the species may have become naturalized in this country. There does not appear any evidence so positive as to demonstrate the fact, yet we suspect this insect, as a supposed variety of *Sphinx Convolvuli*, must have been long known among collectors as a native of Britain, under the denomination of the “Red Underwing *Convolvuli*,” and, if we mistake not, under that of the “Yorkshire *Convolvuli*” also. We believe these names have been applied to the present insect.

The similarity that prevails in the general appearance of this insect, and the *Sphinx Convolvuli*, deserves particularly to be considered, in order to determine whether the latter be really a distinct species, or only a variety.

In the first place, it is to be observed, that the descriptions which Linnæus, and other early writers, afford us, are taken from specimens of the *Sphinx Convolvuli* met with exclusively in Europe: those writers did not consider the species as extra European, much less as a native of the transatlantic regions, and their descriptions will be found to accord with that particular kind of *Sphinx* which is known in England by the name of *Convolvuli*, or Bind-Weed Hawk Moth.

Some time after the work of Linnæus appeared, our countryman Drury published the first volume of his exotic insects, the twenty-fourth plate of which includes the figure of a *Sphinx*, whose external aspect seemed, in his opinion, to correspond with the European *Convolvuli*: the hues and marking of the upper wings were somewhat similar, but in this the colour of the lower wings, which in the European insect are greyish white, were red, a difference which the author of that work imagined might be produced from the effect of climate, the specimen being from St. Christopher’s; and under this persuasion, after speaking of it as an insect which he could not find described, he calls it in his index *Sphinx Convolvuli varietas*.

This induced later entomologists, and among the rest Fabricius, to believe there must be two varieties of the *Sphinx Convolvuli*, namely, the European kind with grey posterior wings, and the American with red posterior wings; for this, though not directly stated, must be implied, as he refers to the plate of Drury's work, before noticed among his synonyms of the species *Convolvuli* *. This latter insect was also, on some popular report, considered as a native of Britain, an idea we suspect to have originated from its being understood that an insect of the *Sphinx* family, corresponding with *S. Convolvuli*, but having red instead of grey posterior wings, had been once taken in England, and was preserved in the English cabinet of Mr. Drury. Such we believe to be the origin of the report, though we cannot absolutely trace it to this source. Should this conjecture be well founded, we may add that the insect, figured and described by Mr. Drury in his work, must have been considered different from the present species by that author: it is very evident he did not admit them to be the same; but whether the attention he had bestowed upon them was sufficient to enable him to determine this point with accuracy, we shall not pretend to decide. Since the dispersion of his collection of exotic sphinges, it is perhaps impossible to discover the genuine insect intended by his *Convolvuli var.* His figure and description is not altogether so definitive as we could wish; and in the general information subjoined thereto, he merely says, "I received it from St. Christopher's. I cannot find it any where described;" and after this, in the index, he names it "*Convolvuli varietas. Linn. p. 798. n. 6.*" In his manuscript notes, at this time in our possession, there is a further memorandum on the same subject, and which, though not material, may be repeated. It occurs in the following words: "*Convolvuli var. St. Kitt's. Mr. Kearton, 1765.*" *Vid. Illust. Vol. I. pl. 25. fig. 4.* In the manuscript note annexed to our present insect, Mr. Drury expresses a different opinion of the latter; for this, he observes, "is not the same as *S. Convolvuli*;"

* The reference in *Species Insectorum* is to plate 25. fig. 1. which latter is an error; it is intended for figure 4. The same error has been followed by Gmelin in his *Linn. Syst. Nat.* but this is corrected in the more recent works of Fabricius.

from which it is to be inferred, that he considered the first of these insects as only a variety of *S. Convolvuli*, and the latter as a distinct species. We shall not, however, adduce this as a positive testimony that they were in reality different: indeed we suspect the contrary; but on a subject so ambiguous, we conceive it candid to state the ideas of Mr. Drury, as well as the opinion we ourselves entertain.

Since the production of the work to which we last adverted, Mr. Abbot, an assiduous entomological collector in the province of New Georgia, North America, furnished several of the English cabinets with specimens of the insects of that particular country where he resided, and among the rest with some few examples of the individual kind of *Sphinx* to which our attention is now directed. A series of drawings by Mr. Abbot, explanatory of the various changes of a select number of the insects of that part of the globe, were likewise transmitted to England about the same period, one of which exhibited the transformation of this very species. These drawings afterwards passing into the hands of the London booksellers, were engraven and published under the title of *Abbot's Insects of Georgia*, with observations by Dr. Smith.

Thus it appears, that of the two figures considered as representations of our insect, one only is certain, and that is the figure included in the last mentioned publication. The latter we are assured of, not only from an attentive inspection of the original drawings*, but also from the individual example delineated in that work, and which differs in no respect from the insect now before us. This we mention in order to shew that our comparisons are deduced with a sufficient degree of certainty.

* These original drawings were, in the first instance, consigned from Georgia by Mr. Abbot to Mr. G. Humphreys, in London, and remained in the possession of the latter some time. They were executed by Mr. Abbot on coarse wire-marked paper, and were, more or less, discoloured and stained with sea-water, an injury sustained in the passage between America and England. With the exception of this circumstance, we have no reason to distrust their general accuracy, and that exhibiting the transformations of our present insect had in particular escaped without any material damage.

From the remarks of Dr. Smith on this particular subject, it is obvious he considered it only as a variety of the European kind of *Sphinx Convolvuli*. “We cannot discover,” says this author, “any material distinction between this and the moth which feeds on plants of the same genus * in Europe, and is often seen fluttering about in towns and houses, making as much noise as a bat, or small bird, for both which it is often taken by the vulgar. The reddish tinge on the under-wings of the American one, is the only difference we can find, and is surely not sufficient to make that kind any more than a variety, as Mr. Drury supposes it. Fabricius does not even distinguish it as such. Mr. (now Dr.) Latham informs us, this variety has been found in England.”

Before we offer any observations likely to discountenance the persuasion of this respectable writer, it will not be amiss to state, that it appears to have been uniformly the idea of every entomologist, as well as Dr. Smith, with the exception of Mr. Drury, that our insect is only a variety of *Sphinx Convolvuli*. Mr. Drury remarks, in the manuscript note above adverted to, that they are certainly different, and that this difference is manifestly discernible. But while we rely on the description which Linnæus affords of the species, it is perfectly consistent to maintain the contrary opinion; and it was hence depending on the Linnæan character, that in our description of *Sphinx Convolvuli*, we were inclined to speak of the present insect as a variety of the former, rather than as a new species. In adverting to the passage in which this supposed variety was mentioned, it will be however perceived, that we entertained, at that time, no inconsiderable degree of distrust as to the propriety of such an opinion, for it was then observed, that “it has all the characteristic marks of *Sphinx Convolvuli*, or we should hesitate to admit it as the same species.” Such were the scruples at that time prevalent in our mind: we were unwilling to oppose the authority of Linnæus, or we should have then constituted it a distinct species. Subsequent observations have tended only to strengthen the propriety of this suggestion, and to convince us, the Linnæan cha-

* Feeds in America on the sweet potatoe, *Convolvulus Batatus*.

rafter of the species *Convolvuli* is too indefinite to form any precise criterion of the species.

On the latter topic we wish to speak more fully in explanation. There is nothing, we would observe, laid down in the Linnæan character to prove the two above-mentioned insects distinct; but, on the contrary, every character is calculated to confirm it. Linnæus had not, in all probability, seen this supposed variety: his specific definition was apparently drawn from examples of the European *Convolvuli*; and he was doubtless not aware that the character he assigned thereto was so far inapplicable as to apply to two distinct insects; these according in every character with the specific distinction he proposes, though in other respects they are remote from each other. Hence it is obvious, that our present insect may really, according to that character, be the *Sphinx Convolvuli*, or *Convolvuli var.* of Linnæus, though as a species it may be still dissimilar. The accuracy of this observation will be more amply demonstrated from the following comparison of the two insects, at present under consideration, with the specific character which Linnæus affords of the *Sphinx Convolvuli*.

Linnæus, in the earlier editions of his *Systema Natura*, thus defines the last mentioned species:—"Alis integris posticis albo fasciatis margine postico albo punctatis, abdomine rubro cingulis atris." According to which, the two insects before us would be at once distinguished as specifically distinct, the bands on the posterior wings being red in one, and white, or at least greyish white, in the other.

This description occurs in the tenth edition of the *Systema Natura*, and it is possible, though it appears otherwise expressed in the later editions of that work, that Linnæus still intended to preserve the same interpretation: it would be uncandid to conclude the contrary, though his words may bear a different acceptation, because he does not himself contradict this supposition. It appears, however, confining our attention solely to the description given of the species in the twelfth edition of that work, and in the subsequent editions published by Gmelin, that the two kinds may be still confounded, the colour of the paler bands forming,

forming, according to those descriptions, no criterion of the species. In the last mentioned work, the *S. Convolvuli* is thus described:—"Alis integris, posticis nigro-fasciatis margine postico albo punctatis, abdomine rubro cingulis atris." And this description will be found applicable to either of the insects before us: in both the wings are entire, the posterior pair barred with black, the hinder margin dotted with white, and the abdomen red, with belts of black.

The Fabrician character of *S. Convolvuli*:—"Alis integris nebulosis, posticis subfasciatis abdomine cingulis rubris atris albisque." (*Syst. Ent.* 544.) will also agree very nearly with either: the wings in both are entire, and clouded: in both the posterior wings are barred, though slightly in *Convolvuli*, and conspicuously in the other, and in each the abdomen is belted with black and red, though in *Convolvuli* every segment is marked at the base with a band of white, no trace of which appears in the other.

From the above it will be inferred, that the description which the latest work of Linnæus offers will correspond with both the insects in question, and that of Fabricius will also accord in almost every essential particular; notwithstanding which, we are persuaded, for the following reasons, they ought to be considered as distinct;—

1. The *Sphinx Convolvuli*, so far as we have been enabled to compare the two kinds, is rather larger: this difference, we admit, may arise from the influence of climate, or any other adventitious cause.

2. There is a slight difference in the contour, the curvature in the sloping margin of the wings being most diffuse in *S. Convolvuli*.

3. The anterior wings in both are clouded and greyish, but in our present insect the grey is finely varied with ochraceous hues; and there is, besides, in the middle of the wings of the latter, a perfectly characteristic fuscous blotch, margined behind with an irregular greyish subcatenated band, neither of which appear in the wings of *S. Convolvuli*.

4. In both kinds the anterior wings are transversely barred, or lineated with a number of indented dark streaks, but in the form of those the most obvious difference prevails. These lines are most numerous in *S. Convolvuli*, and are in that insect so deeply indented as to exhibit a lozenge-form zic-zac, the arches (if the expression be allowable) being greatly elongated, and extending into an acute salient point. In our present insect, the corresponding lines are disposed across the anterior wings, in a similar manner; but these, besides being less considerable in number, are neither zic-zac, nor pointed, for though indented, the angles are almost uniformly rounded, so as to assume a scalloped instead of pointed arch-like appearance.

5. Another difference subsists in the under wings, and which, as well as that of the upper wings, is considerable. In *S. Convolvuli* the prevailing colour is grey, in the present fine rose-colour; in *S. Convolvuli* the black bands are four in number, in the present only three. The two middle bands in some examples of *S. Convolvuli* are indeed confluent, but in no instance whatever have we seen those bands so closely united as to constitute only a single apparent band; while in our present insect, the middle of the wings are traversed by a single band only, and that of a black colour, far more intense than we have ever observed in the bands of *S. Convolvuli*.

6. The larva or caterpillar of *Sphinx Convolvuli* is of a fine green colour, with a single narrow darker green line along the back; each of the segments also are marked on the sides with an oblique whitish yellow line, edged above with dusky or blackish; and four dusky spots, two of which are placed adjacent to the anterior part of the dorsal line, and the others are on each side contiguous to the spiracles. This is the last appearance it assumes before it passes into the pupa form; in the state previous to this last appearance, its colour is brown, with the sides ochraceous. The larva of our present insect we have not seen, but from the drawing made by Mr. Abbot, and which we have attentively compared with the former, there can remain no doubt of its being altogether a distinct species. These caterpillars, according to Abbot, are frequent in Georgia, though the moth is rare, and in the

former state its appearance must be familiar, therefore, to this assiduous collector. The prevailing colour in this delineation is brown, with longitudinal stripes of pale orange, rosy-white and yellow. Along the upper part of the back is a broad stripe of faint orange, inclosing, on each joint, an oblong, or somewhat shuttle-form spot of black, and which altogether exhibits a slightly interrupted or subcatenated band: this is succeeded beneath by a fuscous band of moderate breadth: a line still narrower, and of a delicate rosy-white, runs parallel to this lower edge of the fuscous band; and beneath that the body is brown, with the exception of a yellow band, disposed immediately under the series of spiracles. The last mentioned band extends throughout the whole length, but is confluent on the anterior part of each segment, and there becomes so much produced and curved backwards as to appear deeply falcated: This is the last skin of the larva according to Abbot.

7. The difference in the pupa state is not considerable: they are nearly of the same form and colour; a similarity in this state is, however, observable in many insects of very different species.

8. Neither is it conclusive, from the nature of their food, that they must be specifically allied, as vast numbers of very dissimilar insects are known to subsist on plants of the same kind.—The European *S. Convolvuli* feeds on the common bindweed *Convolvulus Major*, and the Georgian insect on the *Convolvulus Batatas*.

9. The time in which the *Sphinx Convolvuli* makes its first appearance in the winged state, is about the middle of September. The larva of the other, Mr. Abbot informs us, went into the ground on the 20th of August, and the fly came forth on the 11th of September: this was in Georgia; but in Virginia, where he met with the same species, a larva of this kind buried itself on the 3d of October, and did not produce the fly till the 30th of May following.

We have thus endeavoured to state precisely every material circumstance, within our own knowledge, that could possibly tend to determine

mine in what particulars the two above-mentioned insects accord or disagree. For the prolixity of our statement we may claim some indulgence, as it was deemed incumbent to shew, that we were not disposed, on very trivial grounds, to contradict an opinion so generally prevalent, as that of the present insect being a variety only of *S. Convulvi*; an opinion that seems to have obtained an uniform ascendancy over the minds of entomologists in this country, and apparently of some on the continent also. Those insects, when examined with scrupulous attention, appear indeed to differ in so many essential respects, that it would seem impossible they could heretofore have been considered fully, or we apprehend it would not have remained for us to point out their differences. Upon the whole, therefore, we feel impressed with the propriety of considering them specifically distinct, though, at the same time, it must be acknowledged, at the first view, they might be casually admitted as varieties of each other.







P L A T E XCI.—XCII.

S P H I N X E U P H O R B I Æ.

S P O T T E D E L E P H A N T S P H I N X.

L E P I D O P T E R A.

G E N E R I C C H A R A C T E R.

Antennæ thickest in the middle. Wings, when at rest, deflexed. Fly slow, morning and evening only.

S P E C I F I C C H A R A C T E R.

Superior wings light brown, with spots, and broad stripes of dark olive. Inferior wings red, marked with black and olive.

Sphinx Euphorbiæ alis integris fascis, vitta anticis pallida, posticis rubra. *Syst. Ent.* 541. 17.

Linn. Syst. Nat. 2. 802. 19.—*Fn. Sv.* 1086.—
Mus. Lud. Vir. 356.

Sphinx Euphorbiæ alis integris griseis, fasciis duabus virefcentibus posticis rufis basi strigataque nigris, antennis niueis. *Fab. Spec. Inf.* 2. 146. 32.

Sphinx spirilingius, alis viridi fulvo purpureoque varie fasciatis et maculatis, subtus purpureis. *Geoff. Inf.* 2. 87. 11.

Drury Inf. 1. Tab. 29. Fig. 3.

Roes. Inf. 1. Phal. 1. Tab. 3.

Reaum. Inf. 1. Tab. 13. Fig. 1. 4. 5. 6.

Degeer. Inf. 1. Tab. 8. Fig. 6. 11.

Schæff. Icon. Tab. 99. Fig. 3. 4.

Frisch. Inf. 2. Tab. 11.

S P O T T E D E L E P H A N T *Harris. Aurel. pl.* 44.

The Sphinx *Euphorbiæ*, considered as a native of this country, is without exception the rarest species of the genus we have : and if we omit the Sp. *Porcellus*, *Lineata*, *Atropos*, with a very few others, we have no indigenous species that can by any means be compared with it as a rare, or, we may add, beautiful Insect.

Drury has given a figure of the Sphinx without its changes among his rare Insects, but as a native of a foreign country : and before the time of *Harris* it was frequently an object of discussion among *Aurelians*, whether it ever had been taken in *England*; *Harris* in his work, expresses himself thus, “ It has been long in dispute whether “ the Spotted Elephant was a native of this island; but it is now past “ a doubt, as I have had the good fortune to find a Caterpillar of this “ Moth in marshy ground at *Barnsclay*, near *Graysford* in *Kent*, about “ the middle of *August* *; it was better than three inches long, of a “ dark brown colour; the horn at the tail part, which was about half “ an inch long, appeared long and glossy. The head was nearly the “ size of a small pea, of a lightish yellow, brown, or tan colour. I “ tried various herbs to bring it to feed, but my attempts were fruit- “ less, and it died for want †. The Chrysalis in the plate was sent “ me from *Belleisle* in *France*; and the Moth was produced from it “ about the beginning of *June*.”—*Harris’s Aurelian*, plate 44.

We are not informed of more than two similar circumstances that may place its existence in this country beyond dispute; a damaged specimen of the Fly has been taken at *Bath*, and is in our cabinet; and Mr. *Curtis*, author of the *Flora Londinensis*, &c. found four of the Caterpillars last summer in *Devonshire*.

In the Caterpillar state it frequently changes its skin, and appears as frequently to alter its appearance; we cannot else account for the dissimilarity that prevails among all the coloured representations of the Insect in that state that have come under our inspection; in *Rœsel’s Hist. Inf.* we find a figure of the Caterpillar apparently in the last skin,

* 1778.
indicates.

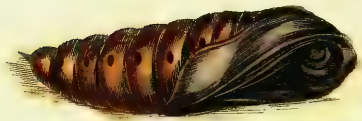
† It feeds on plants of the *Euphorbia* genus, as its specific name

that very nearly corresponds with our specimen; but that figured by Harris does not agree with either, in the form or number of the spots. At an early stage of its growth the Caterpillar, according to Rœsel, is bright yellow, with black patches, and minute white specks.

The figure in plate XCII. is copied from a most perfect specimen of the Caterpillar, and which is now in our possession; but as we cannot assure our Subscribers that it was found in *England*, we have been careful to add it in a separate plate, that so it may either be included in the volume with the Sphinx and Pupa, or be excluded with propriety.







P L A T E CXC. CXCI.

SPHINX CELERIO.

SILVER STRIPE HAWK MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ somewhat prism-form, thickest in the middle: tongue (mostly) exerted: feelers two reflected: wings deflected.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings entire greyish with silvery white stripe: lower brownish with about six red spots in the disk.

Sphinx Celerio: alis integris griseis: striis albis, posticis fuscis: maculis sex rubris. *Linn. Syst. Fat.* 2. 800. 12.

Fab. Ent. Syst. T. p. 1. 370. 43.

Roef. Inf. 3. tab. 8.

Frisch. Inf. 13. tab. 1. fig. 2.

Cram. Inf. 3. tab. 25. B.

The *Sphinx Celerio* stands pre-eminent in the list of British Insects, whether we consider its rarity or uncommon beauty. Indeed, among the Insects of this tribe that are brought from remote countries, even from Asia, which boasts the most splendid species, the varieties of *Sphinx Celerio* are often the most beautiful: it must however be

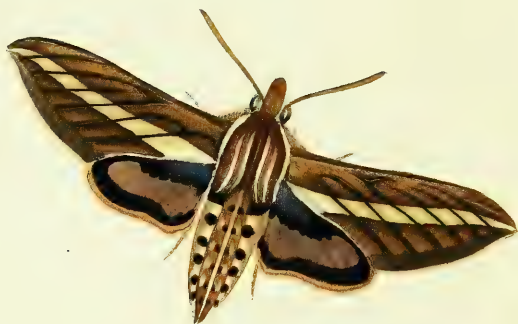
owned, that, in countries where the climate and luxuriance of the soil contribute to enrich the juices of the plants, on which the Insects are nourished, they are larger, and their colours more vivid than any of the same kind produced in the northern countries of Europe.

Several years since, Mr. Francillon, of Norfolk-street in the Strand, had a living specimen of this Insect brought to him: it was taken in Bunhill-fields burying-ground; and is still preserved in his cabinet.

We have heard of other specimens being taken in this country; but can only quote one instance with confidence, namely an example taken at Eltham in Kent, and preserved in the cabinet of Dr. Latham. Specimens of this species occur in most collections of British Insects, but these are generally natives of Germany.

Roefel has given a figure of this Sphinx, with its larva and pupa; and, as we could never reasonably expect to meet with it in these states in England, correct copies of his figures are given in Plate 191. The works of Roefel are not in the hands of many; and, we are persuaded, that Plate may be therefore acceptable to most of our readers.

Sphinx Celerio is found on the vine.



P L A T E CCIV.

FIG. I.

SPHINX LINEATA.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ somewhat prism-form, thickest in the middle: tongue mostly exerted: feelers two, reflected: wings deflected.

SPECIFIC CHARACTER

AND

SYNONYMS.

Anterior wings greenish with bands and streaks of white: posterior black, with a red band on each.

SPHINX LINEATA: alis virescentibus: fascia striisque albis, posticis nigris: fascia rubra. *Fab. Ent. Syst. t. 3. p. 1. 368. 39.*

Sphinx Daucus Cram Inf. 11. tab. 125. fig. D.

Sphinx Koechlini. *Fuessl. Arch. 1. tab. 4.*

This fine Insect is a native of Europe and America. It has a place in every cabinet of English Insects; but on what authority it will be difficult now to determine. It is highly probable, that the testimony of its discovery in England is now forgotten, like that of *Papilio Podalirius*, figured in another part of this work.

The following description of its Caterpillar, which we have seen preserved, as well as represented in foreign drawings, will enable the entomologist to search after it with, at least, a distant chance of success.

The general colour of the Caterpillar is green, varied with yellow : and some streaks and spots of red down the back : it has also a large black spot on each side every segment ; the head is black ; and it has a spine, or tail. This is the appearance of it in one skin ; it casts its skin several times, and will therefore vary in some degree from this account.—The pupa is yellowish brown, speckled with black. It feeds on *Ladies Bed-straw*, *Madder*, *Goose-grass*, &c.

FIG. II.

SPHINX STATICES.

FORRESTER.

LÉPIDOPTERA.

SPHINX.

SPECIFIC CHARACTER.

Anterior wings green blue : posterior brown.

SPHINX STATICES : *Linn. Syst. Nat.* 2. 808. 470.—*Fn. Sv.* 1092.

ZYGÆNA STATICES : viridi cœrulea alis posticis fuscus. *Fab. Ent.*

Syst. T. 3. p. 1. 406. 68.

Geoff. Inf. 2. 129. 40.

Robert. Icon. tab. 30. fig. 1.

Petiv. Mus. 35. 329.

Schæf. Icon. tab. 1. fig. 9.

Esp. Inf. 2. tab. 18. fig. 2.

Found in the winged state in May.—Frequents meadows. The larva is described of a very deep black, with a line of white down the back, and some lunar spots of the same colour in different parts. It feeds on docks.





P L A T E CXXII.

SPHINX ELPENOR.

ELEPHANT SPHINX, or HAWK-MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle : wings when at rest deflected.
Fly slow, Morning and Evening.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings angular, entire ; first wings striped transversely with greenish brown and red : second wings red, with a white posterior margin, and black at the base: body red and brown.

SPHINX ELPENOR. Alis integris, viridi purpureoque variis, posticis rubris basi atris.

Fab. Spec. Inf. 2. 148. 53.

Syst. Ent. 543. 25.

Linn. Syst. Nat. 2. 801. 17.

Fn. Sv. 1049.

Sphinx spirilinguis, alis viridi purpureoque fasciatis, fasciis linearibus transversis. *Geoff. Inf.* 2. 86. 10.

Roef. Inf. 1. *phal.* 2. *tab.* 33. *fig.* 73.

Petiv. Gazoph. tab. 40. *fig.* 11. 12. 17.

Frisch. Inf. 13. 4. *tab.* 2.

The Caterpillars of this very elegant Sphinx are generally found in marshy places in *June* and *July*. They feed on the *Convolvulus*,
Vine,

Vine, and some other plants, but prefer white ladies bedstraw ; they cast their skins several times, and when full fed are some green, and others of a brown colour. The Caterpillars of the female are a fine green elegantly marked with black, as represented in our plate ; those of the male are varied with the same dark markings, but the colour is a dull brown inclining to black in those parts where the females are green.

It possesses a faculty peculiar to a very few Insects, it can protrude its head and three first joints to a tapering point ; or entirely conceal the head and contract the first joints, by drawing them apparently into its body.

The Caterpillars form a white spinning among the leaves in *August* ; remain in the pupa state during the winter ; the Fly comes forth in the *May* following. They are frequently destroyed by an Ichneumenon fly.



P L A T E C C C X I V .

SPHINX PORCELLUS.

SMALL ELEPHANT HAWK MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings deflected when at rest.
Fly slow, morning and evening.

SPECIFIC CHARACTER

AND

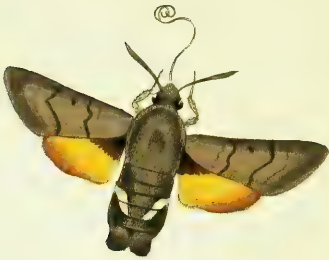
SYNONYMS.

Wings entire, variegated with yellow and purple. Body red,
with white spots on the under side.

SPHINX PORCELLUS: alis integris flavo purpureoque variis, abdomine subtus sanguineo albo punctato. *Linn. Syst. Nat.* 2. 801. 18.—*Fn. Sv.* 1090.
Fab. Ent. Syst. 7. 3. p. 1. p. 373. 52.
Roes. Inf. 1. phal. 1. tab. 5.
Albin. Inf. tab. 9.
Esp. Inf. 2. tab. 19.
Geoff. Inf. 2. 88. 12.

A specimen of this Insect in the winged state was found in Hyde Park this summer; it is one of the scarcest of the British Sphinges, and was found by Harris many years since in “ meadows—Osterly “ Wood, near Brentford, May 27th.”

The larva is of an uniform dull brown, with three eye-shaped spots on each side, and is furnished with a tail; it feeds on the epilobium, and changes to Chrysalis about the end of July.



P L A T E CLV.

SPHINX STELLATARUM.

HUMMING-BIRD HAWK-MOTH

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings, when at rest, deflexed.
Fly morning and evening only.

SPECIFIC CHARACTER

AND

SYNONYMS.

Abdomen thick, brown, and hairy; tufted at the extremity. First
Wings greyish brown, with waves of black across. Second Wings
orange colour.

SPHINX STELLATARUM. *Linn. Sift. Nat.* 2. 803. 27.—*Fn. Sv.* 1094.

Sesia Stellatarum: abdomine barbato, lateribus albo nigroque variis,
alis posticis ferrugineis. *Fab. Syst. Ent* 548 3.
Fab. Spec. Inf. 2 154. 6.

Papilio velocissima, alis albis brevibus, corpore crasso inter volitandum
stridorem edens. *Raj. Inf.* 133. 1.

Roef. Inf. 1. *papilionum Nocturnorum.* Tab. 8.

Bradl. Nat. tab. 26. fig. 1. A.

Reaum. Inf. 1. tab. 12. fig. 5. 6.

Merian. Europ. 2. 33. tab. 29.

Schæff. Elem. tab. 116. fig. 3.

———— *Icon. tab. 16. fig. 1.*

Le Colibri. *Harris. Aurel. pl. 24.*

There are two sorts of Caterpillars belonging to this species. They are alike in size and form, but are very different in colour. One sort is green, the other purplish red, varying much in different specimens, being sometimes almost brown. Both sorts are spotted with minute white specks, which are disposed in regular order over every part, except the belly.

Every Caterpillar is also furnished with a posterior horn, which is blue from the base for more than half its length: the tip is bright orange colour.

The Chrysalis, which is of a pale yellowish-brown at first, changes to a more dusky colour before the Sphinx comes forth.

The Caterpillars feed on several kinds of plants, but seem chiefly to prefer those of the *Galium* genus, particularly, the White* or Yellow† Lady's Bedstraw, and Cleaves, or Goosegrafs‡. They go into the ground about the latter end of August, and remain there in chrysalis till April, or May at the farthest.

It is rather a scarce Insect: sometimes visits gardens in the winged state; and extracts the sweetest juices of the flowers, by darting its long proboscis, or trunk into them; it is from this peculiarity, and its hovering over the flowers at the same time, like the Humming Birds when they feed, that it has received its English appellation.

* *Galium Palustre.*

† ——— *Verum.*

‡ ——— *Aperine.*

This Insect is found in most parts of Europe, but it appears is more frequent in Northern Countries. A near variety of it is found in Botany-Bay ; and we have specimens of it from North America.

Sphinx Belis of Linnæus and Cramer, is described amongst the Synonyms given by Fabricius, as a variety of *Sphinx Stellatarum*, and *Sphinx Ciculus* of Cramer scarcely differs from our Insect.



P L A T E LXXXVII.

SPHINX FUCIFORMIS.

CLEAR WINGED HUMMING SPHINX.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings, when at rest, deflexed. Fly slow, morning and evening only.

SPECIFIC CHARACTER.

Antennæ black. Head and Thorax bright yellow; Body rich brown, except the last joints, which are yellow; Abdomen bearded with black. Wings transparent, with a broad dark brown border; Veins dark.

Linn. Syst. Nat. 2. 803. 28.—*Fn. Sv.* 1092.

SPHINX, &c. *Geoff. Inf.* 2. 82.

Roef. Inf. 3. Tab. 38.

4. Tab. 34. Fig. 1—4.

Bradl. nat. 26. Fig. 1. B.

Sulz. Inf. Tab. 15. Fig. 90.

Poda Inf. Tab. 2. Fig. 6.

Schæf. Icon. Tab. 16. Fig. 1.

SESIA Fuciformis. *Fab. Sp. Inf.* 2. 156. 11.

The Caterpillar of this Insect feeds on the wood of Willows, and concealed within the solid substance of the trunk, in the same

manner as the larva of the *Sphinx* Apiformis *, and *Sphinx* Tipuliformis †, are concealed within the wood of the Poplar, and stalks of Currant bushes.

Fabricius describes the Caterpillar, green with a lateral line of yellow; spine at the end of the body red. *Harris* observes, that in the winged state the fly is found in Gardens, on flowers, in May; *Fabricius* writes on the Honey-suckle, &c.

It is very rare; one specimen has been taken this season on *Epping-Forest*.

* Plate XXV. of this Work.

† Ibid.



P L A T E C X C V .

S P H I N X Z O N A T A .

RED-BELTED SPHINX.

LEPIDOPTERA.

G E N E R I C C H A R A C T E R .

Antennæ somewhat prism-form, thickest in the middle : tongue (mostly) exerted : feelers two reflected : wings deflected.

S P E C I F I C C H A R A C T E R .

Wings transparent, veined, margined with black : abdomen black with a red belt, and bearded at the extremity.

This is apparently an undescribed Insect. It bears the strongest affinity to the *Sphinx Tipuliformis* of Linnæus ; but as the zone or belt of red colour is an unerring distinction of our Insect, it cannot belong to that species. Fabricius having separated the Linnæan sphinges into three new genera, *Sphinx*, *Sesia*, and *Zygaena*, this Insect must be included under the genus *Sesia* of his system ; two of the species he has described under that head, *S. culiciformis* and *tenthrediniformis* bear some resemblance to our *Sphinx zonata*, but are certainly distinct species.

Sphinx zonata is rare in England ; the natural size is shown at Fig. 1. of the annexed plate. The fine purple appearance of the body disappears in specimens that have been kept long in a cabinet.



P L A T E CCCLXXXIV.

SPHINX ASILIFORMIS.

CLEAR UNDER-WING HAWK-MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ somewhat prism-formed, and thickest in the middle: tongue most commonly exerted: feelers two: wings deflected.

* *Section Sesia; wings entire: tail bearded: palpi two, reflected: tongue exerted, and truncated: antennæ cylindrical.*

SPECIFIC CHARACTER

AND

SYNONYMS.

Anterior wings fuscous, posterior ones transparent: abdomen bearded, black, with three yellow bands.

SESIA ASILIFORMIS: alis anticis fuscis: posticis fenestratis, abdomine barbato atro: cingulis tribus flavis. *Fabr. Ent. Syst. T. 3. p. 1. 383. 16.*

SESIA ASILIFORMIS. *Wien. Schmetterl app. 305.*

SPHINX SESIA: alis primoribus fuscis, posterioribus fenestratis, abdomine atro: cingulis tribus flavis. *Gmel. Linn. Syst. Nat. 2389. sp. 102.*

SPHINX TABANIFORMIS. *Naturf. 7. 110. 4.*

SPHINX ASILIFORMIS. *Turt. Syst. Nat. 3. p. 181.*

SPHINX ASILIFORMIS. *Haw. Lep. Brit. 69. p. 19.*

An extremely rare species in England. We have a specimen of it in very fine condition in the cabinet of the late Mr. Drury, that was taken near London, on the poplar. Fabricius speaks of it as an inhabitant of the South of Europe.

The smallest figure represents it in the natural size.



PLATE CCCCXXXVI.

SPHINX CRABRONIFORMIS.

LUNAR HORNET SPHINX.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle: tongue mostly exerted: feelers two, reflected: wings deflexed.

* Section *Sesia*.

SPECIFIC CHARACTER

AND

SYNONYMS.

Head black: anterior margin of the thorax with a semilunar spot: abdomen yellow with two black bands.

SPHINX CRABRONIFORMIS. *Linn. Transf. Soc. v. 3. pl. 3. f. 6—10.*



A species of the *Sesia* family, nearly allied to *Sphinx apiformis*, from which it is principally distinguished by having the whole of the anterior margin of the thorax yellow instead of two spots of that colour; it is also rather smaller, and far more uncommon.

The

The larva is whitish inclining to yellow, with some brown dots; the pupa reddish fuscous. Both sexes have two dark or blackish bands at the base of the abdomen, but in one those bands are entire, in the other marked on each side with a subtriangular spot of yellow. The larva lives in the trunks of willow trees, and appears in the winged state in July,



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P L A T E CXVI.

S P H I N X C H R Y S O R R H Œ A.

GOLDEN-TAIL SPHINX.

LEPIDOPTERA.

G E N E R I C C H A R A C T E R.

Antennæ thickest in the middle. Wings, when at rest, deflexed. Fly slow, morning and evening only.

S P E C I F I C C H A R A C T E R.

Wings transparent with black veins. Head, thorax, body, shining black with yellow rings or belts. Tail fine golden yellow.

In the paintings of *Ernst*, a figure of a transparent-winged Sphinx, similar to this, is given, under the specific name *Oestriformis*: we are not clearly convinced he intended it for this Insect, nor can we conceive the name to be by any means applicable; we therefore pass over the reference to that very scarce work as doubtful, and reject his specific name lest he should mean another Insect.

Linnæus has not described this species, nor have we found a description of it in the writings of Fabricius.

It is rare in England. THOMAS MARSHAM, Esq. Sec. L. S. favoured me with the specimen from which the annexed figure is taken; it was met with in Kensington Gardens in June.



PLATE XXV.

SPHINX APIFORMIS.

BEE HORNET-SPHINX.

GENERIC CHARACTER.

Antennæ somewhat prism-form, tapering at each end: tongue mostly exerted: feelers two, reflected: wings deflected.

* *SESIA Fabr.*

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings transparent; abdomen yellow, with black incisures, and two blackish belts above: thorax black, with two yellow spots.

SPHINX APIFORMIS: alis fenestratis, abdomine flavo: incisuris atris thorace nigro: maculis duabus flavis. *Fabr. Sp. Inf.* 2. p. 156. n. 15.—*Mant. Inf.* 2. p. 99. n. 12. *Linn. Transf.* 3. tab. 1. fig. 1. 2.

The larva of *Sphinx Apiformis* is of the kind denominated by Collectors from its manner of life "an internal feeder," subsisting on the inner substance of the poplar tree, the only one in which the female is said to deposit her eggs, and from whence the larva cannot

be extracted except by making an incision through the outer bark. The larva is of a pale yellowish colour, with the head yellow. In June, early in the morning, or in the evening, the pupa is seen issuing through the bark from a perforation in the trunk, which the larva had previously formed at the distance of six or eight inches, or even more from the bottom of its recess. For the purpose of facilitating the passage of this pupa to the aperture of the cell Nature has furnished every segment with a double row of sharp teeth, or spines, by means of which it firmly attaches itself to the sides of the cavity, and by repeated exertion gradually attains the entrance of its prison. When thus far extricated, the anterior part of the pupa is protruded, while the lower, beset with little teeth, remains in the cavity; in this posture the upper part bursts asunder with violence, and the perfect insect rushes forth, leaving the shell of the pupa sticking at the entrance of its cell.

This is a curious insect, and as it has been observed is rarely found except in Essex.

There is another insect of the Sesiæ, or transparent winged tribe of Sphinges, that differs from the present subject only in a few particulars, yet may easily be distinguished by a crescent of yellow on the fore-part of the thorax, and is thence entitled the Lunar Hornet Sphinx. A drawing of the latter, with the larva, has been presented to the Linnæan Society; and will be also found in a future part of this work.

The insect now under consideration is arranged in many cabinets under the title of Sphinx Vespiformis; but it is not the Sphinx Vespiformis of Linnæus; the latter, in the possession of Dr. Smith, we have seen, and it scarcely exceeds half the size of the present subject.



P L A T E LII.

SPHINX TIPULIFORMIS.

CURRANT SPHINX.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings, when at rest, deflexed. Fly slow, morning and evening only.

SPECIFIC CHARACTER.

Wings transparent, with black veins; a bright brown spot at the extreme angle of each superior Wing. Abdomen, bearded; dark purplish black, with yellow bands.

Syst. Ent. 549. 9.—*Linn. Syst. Nat.* 2. 804. 32.—

Fn. Sv. 1096.

Clerk. Icon. Tab. 9. *Fig.* 31.

Fuessl. Magaz. Tab. 1. *Fig.* 6.

Harr. Inf. angl. Tab. 3. *Fig.* 8.

SESIA Tipuliformis. Fab. Spec. Inf. Tab. 2. 157.

A very elegant, though common Species of the *Sphinx Genus*: it is taken in the months June and July. After the Insect dies, the colour of the thorax and abdomen, except the yellow bands, is entirely black, or black with a very faint gloss of a reddish blue: but is an exceedingly brilliant dark purple, while the creature is alive; and the yellow belts on the alternate divisions of the body, glitter in the sunshine with the effulgence of molten gold. The legs are yet more beautiful, as the purple, though paler, is of a livelier lustre; and every joint is deeply fringed with the same golden colour as that on the body.

The wings, which are perfectly transparent, except at the apex, are delicately veined, and ribbed with black lines. The fan tail is expanded or contracted at pleasure.

If the creature bursts from it's chrysalis in the morning, it is generally observed sporting among the leaves of the nearest plants about noon; and this is commonly the time the male is seen seeking its mate.

It's very singular appearance before the opaque microscope, induced us to give the magnified figure, together with the Caterpillar, Chrysalis, and Sphinx, of the natural size.



P L A T E LIII.

SPHINX TIPULIFORMIS.

CURRANT SPHINX.

CATERPILLAR, CHRYSALIS, and SPHINX of the Natural Size.

The Female deposits her eggs in the crevices of such twigs as are hollow; and a peculiar instinct almost invariably directs her to the stalks of the currant trees: which are not only easy of access, but afford grateful nourishment to the young brood. Immediately that the Caterpillar is enlarged from the egg, it perforates the stalk, and, having entire possession of the inner channel, it feeds on the soft substance which is abundant within. Thus it is secured by nature, with a defence against many depredators, to which all Caterpillars, except internal feeders, are exposed.

It changes to a Chrysalis within the stalk.

A short time before the Insect bursts forth, the Chrysalis is protruded through the outer bark, precisely in the same manner as the Chrysalis of the *Sp. Apiformis* (PLATE 25.); and is supported by a similar contrivance, every segment being serrated, or armed, with a row of very minute teeth, which firmly embrace the substance of the stalk, and elevate the Chrysalis in an oblique posture; until the last efforts of the Insect completely disengages it from the case.

The *Sp. Tipuliformis* is the only Species of the transparent-winged Hawk-Moths, which is common near London; and is the smallest Insect of this division of the *genus*: the division contains few individual species: but such as are generally very rare; at least the broods appear local in this country. The Currant Sphinx is taken in June.



P L A T E VI.

S P H I N X F I L I P E N D U L Æ.

SIX SPOT BURNET HAWK-MOTH.

LEPIDOPTERA.

G E N E R I C C H A R A C T E R.

Antennæ thickest in the middle. Tongue usually exerted. Palpi two, reflected. Wings when at rest deflected.

S P E C I F I C C H A R A C T E R.

Anterior wings cyaneous-green, with six red spots: posterior wings red with a blue border.

S P H I N X F I L I P E N D U L Æ: alis primoribus cyaneis: punctis sex rubris, posterioribus rubris: margine cyaneo. *Linn. Fn. Suec.* 1097.—*Gmel. Linn. Syst. Nat.* 2290. *Sp.* 34.

Z Y G Æ N A F I L I P E N D U L Æ: *Fabr. Ent. Syst. T.* 3. *p.* 1. 386. *Sp.* 1. *Degeer. Inf.* 7. *p.* 591. *n.* 1. *t.* 44. *f.* 1.

We have in England two species of the Sphinx tribe, (*Zygæna* of Fabricius) that are known by the trivial appellation of *Burnets*, namely, the *five-spot Burnet*, and the *six-spot Burnet*. These are not varieties, as they have been sometimes considered; they are evidently distinct species, the former *Zygæna Loti* of Fabricius, the latter *Sphinx Filipendulæ* of Linnaeus. There is a variety of *Filipendulæ*

found in some parts of the continent, in which the abdomen is marked with a single rufous belt, but this kind has not, to our knowledge, been discovered in this country : Esper gives it under the name of *Sphinx Peucedani*, Gmelin deems it nothing more than a variety of *Filipendulæ* β .

The six spot Burnet Sphinx is taken pretty frequently in the neighbourhood of London, where the other is rarely found. In some parts of Bedfordshire the five-spot Burnet is very common.

As all lepidopterous insects are liable to some trifling variations in the colours and markings of their wings from accidental circumstances, so specimens of *Sphinx Filipendulæ* have been taken with the two spots near the base very closely united; inasmuch as to appear like a single spot, and hence arose some doubt as to the existence of any other five spot Burnet. If, however, we compare this variety with the true five spot Burnet, a striking difference must be perceived. The latter is smaller, the blue border of the inferior wings is deeper, and the spot of red, which in the six spot Burnet is situated nearest to the apex of the superior wing is wanting.

The larva of the present species feeds on the *Genista Anglica*, on the *Ulex Europæus*, and *Spirea Filipendula*, from the latter of which its Linnæan name is derived.



PLATE CCCXIX.

SPHINX LOTI.

FIVE SPOT BURNET SPHINX.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings deflected when at rest. Fly flow, morning and evening.

SPECIFIC CHARACTER

AND

SYNONYMS.

Anterior wings greenish, with five red spots: posterior pair sanguineous, bordered with fine blue.

ZYGÆNÆ LOTI: alis anticis viridibus: punctis quinque rubris, posticis sanguineis: limbo cyaneo. *Fab. Ent. Syst. T. 3. p. 2. p. 387. sp. 5.*

SPHINX LOTI. *Wien. Verz. 45. 3.*

Schæff. Icon. tab. 16. fig. 6, 7.

Sphinx Lonicæræ. *Esp. Inf. 2. tab. 24. fig. 1.*

This beautiful little species may be easily confounded with the Sphinx Filipendula, figured in the sixth plate of this work; its general resemblance is striking, and it differs chiefly in the number of red spots that adorn the superior wings. Sphinx Filipendula has invariably six spots on each wing, and the latter as constantly only five.

Some

Some readers may be inclined to deem it a mere variety of the former, from its general appearance, but it will be perceived by the synonyms quoted above, that several of the continental writers on this subject admit it as a distinct species.

It is rare in this country, and the larva unknown, or at least is undescribed.

